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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,610	07/13/2001	Toshimori Miyakoshi	1272.C0465	2208

5514 7590 12/24/2002

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EXAMINER
NGUYEN, LAM S

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 12/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/903,610	MIYAKOSHI, TOSHIMORI	
	Examiner	Art Unit	
	LAM S NGUYEN	2853	

-- The MAILING DATE of this communication appears on the cov r sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being obvious by Matsubara (US 5576745).

Matsubara discloses a method for controlling the drive energy of an ink jet print apparatus wherein a print element is driven to eject an ink from an ink jet print head to a printing medium for performing printing, the method comprising:

a first step for supplying a plurality of different drive energies successively to the ink jet print head (column 17, line 43-44: heating the recording heat by supplying a plurality of different drive energies successively indicated by a sequence of two pulses (FIG. 15);

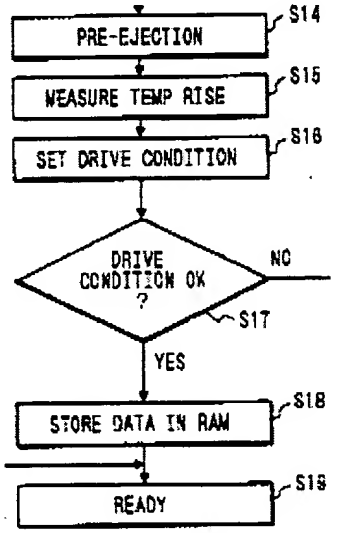
a second step for monitoring temperature of the ink jet print head according to the supply of the drive energy (column 17, line 45-47) in each supply of the plurality of different drive energies (column 17, line 64-67: the temperature is detected at before and after the preheat pulse is applied; by another words, the temperature is detected at before and after the main pulse is applied);

a third step for judging a threshold drive energy (in term of "a thermal change state") required for ink ejection of the ink jet print head using a value for each supplied drive energy and a value for each monitored temperature (column 17, line 48-50: teaching a

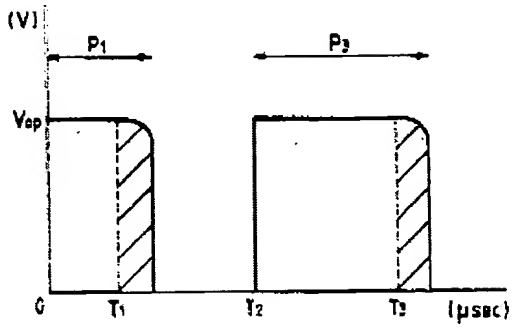
determination of the thermal characteristic that is a thermal change state of the thermal head by energizing the thermal head (column 3, line 26-27) based on the temperature change caused by a supplied drive energy);

a fourth step for determining a drive condition for ejecting ink on the basis of the threshold drive energy (column 17, line 52-54: a threshold drive energy is implied in the term "a thermal characteristic" as explained above); and

a fifth step for driving the print element on the basis of the determined drive condition (column 17, line 56-57).



Referring to claims 2, 8: wherein in said first step, a difference in the amount of each drive energy supplied to the ink jet print head is generated by changing a pulse width of a drive pulse signal applied to the print element (FIG. 15: the pulse widths of P1 and P3 are modulated).



Referring to claims 3, 9: wherein in said first step, an initial drive energy supplied is determined on the basis of drive condition information (in term of "a standard drive condition") stored in the ink jet print head (column 1, line 59-67).

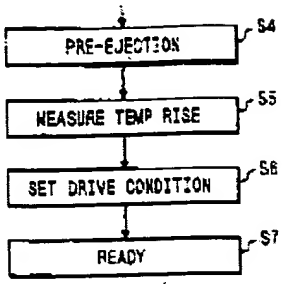
Referring to claims 6, 12: a method for controlling the drive energy of an ink jet print apparatus wherein a print element is driven to eject an ink from an ink jet print head to a printing medium for performing printing, the method comprising:

a first step for supplying a plurality of different drive energies successively to the ink jet print head (FIG. 10, step S4 and FIG. 15);

a second step for monitoring temperature of each of said ink jet print head according to the supply of the drive energy (FIG. 10, step S5) in each supply of the plurality of different drive energies (column 17, line 64-67: the temperature is detected at before and after the preheat pulse is applied; by another words, the temperature is detected at before and after the main pulse is applied);

a third step for determining a drive condition for ejecting ink using a value for each supplied drive energy and a value for each monitored temperature (FIG. 10, step S6); and

a fourth step for driving the print element on the basis of the determined drive condition (FIG. 10, step S7: READY means ready to record (column 10, line 58)).



Referring to claim 14: wherein the memory provided on the ink jet print head is an EEPROM (column 11, line 35-44).

Referring to claims 4, 5, 10, 11: wherein in said fifth step, when the determined drive condition is different from drive condition information stored in said ink jet print head, drive condition information stored in the ink jet print head is updated with the determined drive condition data or when both are different, drive energy to drive the print element is changed (FIG. 11, steps S17 and S18), then based on new data stored in RAM, new pulse width modulation is done).

Referring to claims 15, 16: wherein energy supply to the ink jet print head is made by applying drive signals (FIG. 12, 15) to heat generation elements (FIG, 2, element 5113) of the ink jet print head.

Response to Arguments

Applicant's arguments filed October 21, 2002 have been fully considered but they are not persuasive.

Regarding to the argument on page 8, paragraph 5 referring to claims 1, 6, 7, 12, 13: The applicants argued that the Matsubara reference fails to disclose or suggest at least supplying a plurality of different drive energies successively to an ink jet printhead and monitrring temperature of the ink jet print head according to the supply to the drive energy in

each supply of the plurality of different drive energies. However, as discussed above, this limitation is disclosed by Matsubara. Therefore, these claims are unpatentable. In addition, the limitations of all dependent claims 2-5, 8-11, and 14-16 are also disclosed by Matsubara. Thus, these claims are also unpatentable.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (703)305-3342. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E BARLOW can be reached on (703)308-3126. The fax phone numbers for

the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

LN

December 20, 2002

John Barlow
Supervisory Patent Examiner
Technology Center 2800